

# Successful Integration of Patient Care and Administrative Functions

Gary P Thomas, M.D., Marina Krol, Ph.D.

Department of Anesthesiology, Pain Management Services

The Mount Sinai Medical Center, NY, NY

**Introduction.** With the increasing need for computer based data management in the present medical environment of cost containment and increasingly complex regulations, we have developed a data management system which successfully fulfills the needs of a medium sized academic based medical practice. Previous point of care systems<sup>1</sup> failed to integrate patient care and administrative functions which would meet the needs of our practice: (1) rapidly increasing size of the medical practice which required a database management of the patients medical information; (2) stricter billing requirements imposed by the new Medicare/Medicaid rules; (3) the need to produce mandatory statistical reports for the residency program; and (4) for internal departmental justification of resources. Other publications describing approaches for data management systems for anesthesiology have not lead to functional systems accepted by physicians, administrators and billing personnel.<sup>2,3</sup>

**System Overview.** The multifunctional system was created using Visual Basic and Microsoft Access programming tools. It consists of a secured multi-screen graphical interface where a physician may navigate through 6 functional subsystems, that are supported by five sets of relational database tables. The first database is the active patient roster, and includes inpatient identifying information, medical history, medications, date and type of medical service provided( with billing codes), and the physician that performed the service. The second is the discharged patient database. The third is an outpatient database of demographic data and procedures performed. The forth is an itemized summary of the services provided and the CPT billing codes for each patient in the primary database. The fifth is a supporting set of tables common to other subsystems.

The Patient Care subsystem assists medical providers in collecting and displaying medical data on active, discharged and ambulatory care patients. The Administrative Services subsystem is responsible for billing and reporting functions. The billing system prepares a summary of the

services provided and automatically generates database records whenever a patient is added to the active patient roster, is discharged, or when a specific procedure is provided. A daily billing report is generated for each physician to ensure accuracy and to provide a signed hard copy. The complete billing information in Access database format is delivered to the billing company via disk or secured E-mail, thus preventing transcription errors, coding errors, and saving the time it takes to collect on a patient's account. In addition, the program also contains a statistical analysis module with dynamic querying capabilities, that produces periodical reports automatically on any database parameter(s). Several backup and safeguards have been integrated into the database, including intentional structural redundancy in the database design, internal archival, and physical backups of 2 generations of the database on internal and external hard drives, in addition to hard and disk copies for a billing agency.

**Discussion.** This system has successfully taken three time consuming tasks, performed by three separate groups of individuals and integrated them into one easy to use system. The above program has received praise for decreasing time spent by physicians performing billing tasks by 30%, increased billing revenue collections by an estimated 5-10%, and bringing the pain management service up to date with the billing regulations, thus avoiding possible Medicare/Medicaid penalties.

## References

1. Trace-D; Naeymi-Rad-F et al. Intelligent Medical Record--entry (IMR-E). *J-Med-Syst.* 1993; 17(3-4): 139-51
2. Moller-DP; Horner-C. Object-oriented data management: an approach to computerized anesthesia documentation. *Int-J-Clin-Monit-Comp.* 1993 10: 247-50
3. Zbinden-AM; Christensen-J; Kuster-M How can a standard software package for data management in anesthesia be achieved? *J-Clin-Monit.* 1992; 8(4): 315-8